Ch. No 74

319 Market

Stud. of Dr Horner

Passed March 7. 1836

W. E. H.

An Essay

on

Laryngo-Tracheitis

for the

Degree of Doctor of Medicine in the

University of Pennsylvania

By William S. Reid

of Henry County, State of Tennessee

Philadelphia January 1. 1836

This dis-
very fr
and fa
ordinary
childhoo
disease
however,
record
of croup
a disea
ages, is
Dr Cope
is to be n
Dr Cheyn
description
last cen
on the a
-ion to t
neglect
them we

Laryngo-Tracheitis,— Croup

This disease requires the careful consideration of every practitioner of medicine; its rapid progress and fatal tendency render it a subject of no ordinary interest to mankind. Infancy & childhood are the periods of life, to which the disease is almost exclusively confined, instances, however, of its attacking adult age are upon record— this is a rare circumstance. The history of Croup is veiled in some obscurity. Whether it is a disease of modern date, or has existed from remote ages, is a point upon which authors disagree. Dr Copeland affirms, that evidence of its existence is to be met with in the writings of Hippocrates; Dr Cheyne accounts for there being no precise description of this disease prior to the middle of last century, by charging ancient physicians— on the authority of Harris— with great inattention to the diseases of children; so great was this neglect he informs us, that the most eminent of them went, when called to their assistance with

great m
To what
are des
writing
believe,
precis
prior
1765. E
-tion of
it is to
writer,
should
like m
ment
two w
in any
to The
differe
disease
time &
merely

great reluctance believing their diseases incurable. To what degree, if any, the physicians of older times are deserving of this charge my knowledge of their writings will not enable me to say; but it is, I believe, agreed upon by all writers, that no precise account of this disease is to be met with prior to Home's essay which was published in 1765. Since this period Croup has engaged the attention of some of the first talents in the profession, & it is to be regretted that the views of these eminent writers, regarding the true nature of the disease should so widely differ. Upon this subject, however, like most others in medicine, unanimity of sentiment will be sought for in vain; scarcely any two whom I have been able to consult agree in any particular; were this discrepancy confined to the minutiae, it would have been well, but the difference of views as to the very essence of the disease among some is fully as wide. At one time & by one party the disease was considered as purely a spasmodic affection; by another infla

-matic
pted a
& Chas
-ologi
practice
which
-terms
either,
in the tr
the dise
ought
of deat
that of
this diff
active
present
-ly fro
adopt
if not
membra
of a sp

-mmation was alone concerned, & a third has attem
pted a compromise by supposing both inflammation
& spasm have their appropriate cases. Before path
-ological investigation was well understood and
practised it was impossible to say with certainty
which party was correct in their views, as the symp
-toms could in some degree be explained by
either, tho' it would seem the comparative success
in the treatment, by those who held the opinion that
the disease was purely an inflammatory affection
ought to have decided the point. The proportion
of deaths formerly, are said to have greatly exceeded
that of the present day. I know not what to attribute
this difference of success, if it is not owing to the
active antiphlogistic treatment pursued at the
present time. My views of Croup are derived entire
-ly from books, & from these I am induced to
adopt the opinion that it is in nearly every instance,
if not always, an inflammation of the mucus
membrane of the larynx & trachea; that it is never
of a spasmodic nature I am not prepared to assert,

No. th
whose
-ive
however
having
view th
Chasu
some to
the Lan
produce
view a
be Lan
i prob
which
this su
life in
to be re
the fun
cases o
-ried; i
-mation

tho' this is the opinion of two writers, Drs Cheyne & Dewees, whose experience in this disease is, probably, as extensive as any who have ever written upon it. I find, however, that Dr Chapman in his Therapeutics - never having heard him lecture upon it - supports the view that it may sometimes depend primarily upon spasm of the muscles of the larynx - inflammation sometimes occuring as a consequence, precisely in the same way that inflammation of the intestines is produced by colic. His reasons in support of this view are - that the attack is sometimes too sudden to be caused by inflammation, that time is required to produce that change in the capillaries, upon which inflammation depends & where it occurs thus suddenly, without any warning & terminating life in a few hours, the cause of death will have to be refered to a different source than inflammation. He further appeals to the morbid appearances of those cases occuring thus suddenly in support of this view; in many of which no evidence of inflammation is to be seen; should, however, the disease

have
mation
no re
ab inc
whose
exceed
they are
am str
in these
into the
whether
or came
-paratu
above th
in the sp
ded wi
-tion of
inflam
the spas
disease
solely f

have continued long enough to produce inflammation, the same has happened in Colic & is therefore no reason why it should have been inflammatory ab initio. The views of the distinguished professor whose argument I have just given are to me exceedingly plausible, but that the case to which they are applicable is of very rare occurrence I am strongly disposed to believe. The diagnosis in these two varieties will be assisted by an enquiry into the manner in which the disease attacked; whether it was preceded by catarrhal symptoms, or came on suddenly: added to this the pulse & temperature, which in the inflammatory variety are above the natural standard, this is not the case in the spasmodic form - The latter is said to be attended with complete intermissions. With the exception of blood-letting the remedies adapted to the inflammatory variety would be applicable to the spasmodic form, & my remarks upon the disease in the following lines will be intended solely for the inflammatory variety.

Inflam
de d in
far as
former
but the
energet
it into t
the its p
first wi
has tak
has tak

Symptom
it is gener
symptom
will rea
These sym
from it
Croup s
instrum
premoni

Inflammatory Croup has by most writers been divi-ded into Acute & Chronic; The only difference so far as I can learn is in the activity & severity of the former; The indications in the treatment are the same, but the remedies for the acute should be more active & energetic. In treating of Croup I shall divide it into two stages, as better calculated to mark ~~the~~ its progress & the remedies adapted to each. The first will describe the disease before effusion has taken place; the second after effusion has taken place.

First Stage

Symptoms.— Before the disease is fully developed, it is generally preceded by certain premonitory symptoms, which to one much accustomed to it, will readily be recognized as those of Croup. These symptoms mostly resemble a common catarrh, differing from it chiefly in the sound of the cough— that of Croup sounding as if it issued from a metallic instrument— vibrating; in other respects the premonitory signs of an attack differ but little

from
by mot
but Dr
diagn
contin
develo
time b
Dewee
When
as to it
is alten
terized
becomes
has been
dry +
very sel
sometim
expector
injected
The diff
in this s

from those of incipient catarrh. These symptoms by most writers have been described as pure catarrh, but Dr Dewees denies their identity; his chief diagnosis is in the cough. These symptoms may continue for several days before the disease is fully developed, or they may be followed in a very short time by an alarming attack; in every case Dr Dewees affirms they are distinctly marked. When the disease is fully formed all difficulty as to its nature vanishes; the voice at this period is altered — every attempt at speaking is characterized by a ringing, hoarse sound; the breathing becomes difficult, particularly inspiration, which has been compared to a piston forced up a pump — dry & hissing. The cough is dry & clangous, very seldom attended with any expectoration, sometimes however, a white viscid substance is expectorated; the face is flushed; eyes watery & injected; pulse quick & tense; skin hot & dry. The difficulty of breathing is sometimes so great in this stage as to prove the cause of death —

instance
of very
speedily
the

After
- any rel
the coun
flushed
breathin
child i
its positi
"it head
-iate the
-ent, al
frothy m
from th
-orated
muco-f
former c
to remov
the child

instances of which are upon record, but this is of very rare occurrence, for unless the disease is speedily arrested effusion takes place & we then have the Second Stage.

After effusion has taken place there is a momentary relief, but soon the case becomes much aggravated; the countenance becomes altered, it is no longer flushed, but is succeeded by paleness, or a livid hue; breathing is much more difficult & laborious, the child is said to be very restless frequently changing its position in order to breathe with more ease "its head is thrown back & mouth opened to facilitate the ingress of air". The cough is more frequent, attended with an expectoration of "thin frothy mucus" at first, which affords little relief from the continued effusion. The matter expectorated varies in consistence; sometimes it is of a muco-purulent nature, at other times it is of a firmer consistence. From the almost constant effort to remove the obstruction to respiration by coughing the child becomes much exhausted; the pulse is

quick
-ration
above
is free
The di
itself
time,
suffo
-ese
-ced
advan
violent
Alex
life i
attack
longer
differ
-tion o
arrest
cause
life u

quick & small; the body bathed in a clammy perspi-ration, extremities cold; the voice low, scarcely above a whisper towards the close of the disease, it is free from the harshness of the 1st stage.
The disease having progressed thus far unchecked, it seldom remains stationary for any length of time, the child dies on the 3d, 4th or 5th day from suffocation. Such is the course I believe, the dis-ease most generally pursues, when suffered to pro-ceed unmolested, but its mode of attack is not always similar, sometimes it assails in the most violent manner terminating life in a few hours. Alexander mentions instances of its terminating life in twenty four hours from the period of its attack; it may on the other hand linger a much longer time & assume a chronic character. This difference will probably depend upon the constitu-tion of the patient & the means resorted to, for arresting its progress... Causes.— Of all the causes which predispose to croup, that of early life would seem to exert the greatest influence.

Ho fil
has be
that th
were s
cannot
disease
much
be con
of the
epitha
delic
origin
that ne
that th
is crow
doubte
suffer
establi
-mitted
prevail
can i

No plausible explanation, so far as I am acquainted, has been given to this circumstance, & may I not add that the probability is it will remain unexplained. The mere size of the larynx & trachea at this period of life cannot exert any agency in the production of the disease, but will doubtless when once established add much to its severity & danger. There may however, be some thing in the nature of the lining membrane of the larynx & trachea at this age upon which the aptitude to the disease depends, independent of its delicate vascular nature; unless this be true — a peculiar original organization of this membrane, what is it that renders one child more liable than another? That there exists a predisposition in some children to croup from birth, independent of age cannot be doubted from the testimony to this point. After having suffered one attack a predisposition to a second is established, & it is very seldom that a child is permitted to escape with one attack only. Croup prevails to a greater extent in the spring & fall, than in the less varied seasons of the year; sudden

changes
the most
headed
sometim
-pleased
a state
the dise
are no
attacl
the nel
-memb
diseases
of age;
of its o
perids
period
puberty
more lic
no doul
child d
frequen

changes from heat to cold, combined with moisture are the most frequent exciting cause of the disease. Small Pox, Measles & Scarlatina - more particularly the latter - are sometimes the cause of Croup; after having disap-peared the mucus membranes generally are left in a state of irritation & a slight exposure may produce the disease; also a sudden recession of the eruptions are not unfrequently followed by an alarming attack of Croup - one of the instances showing the relation which exists between the skin & mucus-membranes. The period of Childhood to which the disease is mostly attached is between one & five years of age; within this period there are more instances of its occurrence than in the anterior & subsequent periods of life - it is a rare circumstance as I have ~~pre~~viously mentioned for Croup to occur after puberty. Florid & robust children are said to be more liable to the disease than others. There can be no doubt likewise, that the habit of dressing children, leaving their necks bare, is often a frequent source of the disease.

On op
an e
portio
frothy
upper
The ap
linin
ramif
or fin
The air
fluid
on pr
This c
bronc
Bronc
The ca
inflam
such a
- whic
death

On opening the trachea, the cause of death is made manifest: an effusion varying in consistence is seen in different portions of the respiratory tube; sometimes it is a thin frothy mucus, or of a muco-purulent nature in the upper part of the trachea & larynx; or it may present the appearance of a membrane more or less perfect, lining the trachea, larynx & extending into the bronchial ramifications. Dr Cheyne says if a child dies four or five days after an attack, we will sometimes find the air cells & bronchial tubes filled with a white fluid like matter; the lungs will not collapse on pressure owing to the interstitial effusion - in this case the inflammation has extended in to the bronchiae, complicating Laryngo-Tracheitis, with Bronchitis. I have said on a mortual inspection the cause of death was manifest, I allude here to inflammatory Croup, previously I have said no such appearances were to be met with in Spasmodic Croup - which is a very rare disease. In every case of death from Croup, a want of proper aeration of

the blood
opinion
I
should
stage, be
instance
the exte
the same
seldom
taken the
practitio
it then
-dies. The
symptom
to V.S., th
temparan
standar
safety to t
-tons cu
to be pr
with mo

the blood was the mediate cause,- this I believe is the opinion of all authors.

Treatment of the First Stage.

Should the physician be called in, during the forming stage, before the disease is developed, it may in nearly every instance be arrested. For this purpose Dr Dewees advises the external application of Spts. Terebi: to the throat, at the same time nauseating doses of Wine Syrup. It very seldom progresses any farther, the Dr informs us when taken thus early. It rarely happens however, that the practitioner is called until the disease is fully formed & it then too often baffles the most appropriate remedies. The practice in this case will be governed by the symptoms; it is not necessary in every case to resort to V.S., tho' this remedy where the pulse is quick & tense, temparature of the surface much above the natural standard & the respiration difficult, cannot with safety to the patient be dispensed with. Where symptoms such as I have just stated exist, the practice ought be prompt & energetic, for few diseases march with more rapid strides to the tomb, than Croup

when o
of conf
blood
on "ins
the syst
ing th
In y ou
to bleed
advise
In dete
we ah
first-in
Other
resortin
ing has
abstract
a valua
the Ster
cy of op
Eberle d
That an

when once fully developed. Among the remedies deserving of confidence V.S. claims first our attention. Sufficient blood shd be drawn at the first bleeding to make an "instantaneous impression upon the disease, & upon the system, by diminishing the quantity of blood, altering the determination & unloading the lungs".
In young children it may sometimes be difficult to bleed from the arm, in urgent cases it has been advised in this dilemma to open the jugular vein.
In determining upon the propriety of repeating V.S. we shd be governed by the same symptoms as in the first instance - pulse, temparature & breathing.
Other remedies however, ought to be tried before resorting to a second bleeding. After general bleeding has been premised to an extent that renders a further abstraction a question of doubt, leeches have been advised as a valuable auxiliary; they are directed to be placed above the Sternum & alongside the trachea. There is some discrepancy of opinion respecting the application of leeches; Drs Dewees & Eberle deny their utility; they on the contrary affirm that an aggravation of the symptoms follow their appli-

cation
confident
by guera
discord
in other
Immedia
Antimon
which a d
effect th
heart + a
exerts a
vessels - n
time tur
blisters,
a blister
effect so
cases of
ion it p
insensib
the prec
in his Th

-cation; Drs Cheyne, Alexander & McIntosh advise them very confidently, after the force of the circulation has been diminished by general bleeding. I cannot pretend to reconcile such discordant views; They are said to prove useful here, as in other inflammations - unloading the capillaries. Immediately after general bleeding an emetic of tartarized Antimony shd be given - 1 gr. to ℥i of water; a teaspoonful of which administered every 10 or 15 minutes will generally effect this purpose. Besides controlling the action of the heart & arteries, equalizing the circulation, an emetic exerts a specific action upon the capillary system of vessels - restoring their natural secretions. At the same time turpentine shd be applied to the Throat in preference to blisters, its action is much more "propt & powerful" & before a blister could have any effect the disease may have progressed so rapidly as to occasion irreparable mischief; in cases of slow progress a blister is preferable, as the impression it produces is more durable. Where the Stomach is insensible to an emetic, the Warm bath conjoined with the preceding remedies is recommended by Dr Chapman in his Therapeutics. The treatment I have described, if timely

administ
greff; i
entirely
of 2, 3 o
emetic
will gi
Calomel
actions
action o
action
continue
dies & eff
is demand
to give.
All eff
provid
especial
lymph
a cure
consider
expected

administered, will in some cases arrest its further pro-gress; in other instances, though crippled it has not entirely relinquished its hold: here Calomel in the dose of 2, 3 or 5 grs every hour or two, combined with tartar emetic in nauseating doses, with a blister to the throat will generally remove every vestige of the disease. Calomel is said to prove beneficial by its revulsive action & likewise evacuating the bowels. From its known action on the capillaries, may it not so alter the diseased action as to subvert it? Should however, the disease continue its onward march unchecked by these remedies & effusion takes place, some alteration of treatment is demanded, the details of which I shall now proceed to give. Treatment of the Second Stage.

All efforts to resolve the inflammation having proved unavailing & effusion has taken place, especially if it is of the consistence of coagulable lymph, lining the larynx, trachea & bronchial tubes, a cure we are told by an eminent writer is to be considered rather as an escape than a thing to be expected. B.S. is forbidden where the pulse is weak

and soft,
Dr Cheyne
from D.
opinion
hovers o
sion, ye
Emetics,
to expel
purulen
of the re
is very
owing to
that Dr
& grs of
For The
brane, S
the for
larynx
"Take L
half pin
strain

and soft, & skin bathed in a clammy perspiration.
Dr Cheyne says he has never seen any advantage to accrue from V.S. at this period; Dr Dewees is of the same opinion. It wd seem to exhaust the already sinking powers of the constitution to abstract blood after effusion, yet Dr Alex under advises it shd be done.
Emetics, are almost our sole reliance at this period to expel the deciduous membrane & remove the muco-purulent matter choking up the different portions of the respiratory tube. The stomach in some cases is very insensible to the impression of an emetic, owing to the congestion of the brain — so much so, that Dr Cheyne states, he knew a child to take 6 or 8 grs of Tartar Emetic without producing vomiting.
For the purpose of detaching the deciduous membrane, Seneka is preferred by Drs Dewees & Eberle; the former says it creates a greater shock to the larynx & trachea. His formula for using it is to "take half ounce of powdered seneka, boiling water half pint; let it simmer until nearly half reduced, strain it carefully & give to a child from 1 to 3 years

ld a b
to a ch
bal om
lour o
ts ten
the w
vieti
e obst
fresfi
initat
bunes
have b
to form
effusi
form o
Other
experien
in a u
human

old a teaspoonful every 15 or 20 minutes until it pukes; to a child older he gives two teaspoonful at a dose. Calomel shd also be given in the dose of 3 to 5 grs every hour or two, with a view to its revulsive action, besides its tendency to alter the deranged secretions. Instead of the warm bath hot flannels to the surface, with frictions might probably answer a better purpose; a blister shd be kept to the throat, which from the impression it produces has a tendency to withdraw irritation from the inflamed parts to the surface. Cures after the formation of the deciduous membrane have been accomplished, but they are so rare, as scarcely to form an exception to the rule - that when the effusion lines the larynx, trachea & bronchia in the form of a membrane, death may with certainty be expected. Other remedies have been advised, but from the experience of the best Authors, I think, I am justified in saying, when the above remedies fail, all human efforts will fail.

Will. S. Reid.